

What is claimed is:

1. A connector module, comprising:

a first member having at least one first conductive lead disposed therein and a dielectric portion coupled to an end portion of the at least one first conductive lead; and

5 a second member having at least one second conductive lead disposed therein, the first and second members being coupled such that respective end portions of the first and second conductive leads are operatively positioned and spaced apart by the dielectric portion, the dielectric portion being adapted to capacitively couple the respective end portions of the first and second conductive leads and to allow signals to be transmitted therethrough.

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2. The connector module of Claim 1, wherein the dielectric portion comprises a first dielectric portion, further comprising a second dielectric portion coupled to the end portion of the at least one second conductive lead.

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3. The connector module of Claim 1, wherein the at least one first conductive lead includes a pair of first conductive leads having a corresponding pair of dielectric portions coupled to end portions thereof, and wherein the at least one second conductive lead includes a pair of second conductive leads.

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4. The connector module of Claim 1, wherein the first and second conductive leads comprise size 12 leads.

5. The connector module of Claim 1, wherein the thickness of the dielectric portion is approximately 1 mm.

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6. The connector module of Claim 1, wherein the dielectric portion has a dielectric constant within the range of approximately one to approximately ten.



7. The connector module of Claim 1, wherein the first and second conductive leads comprise size 12 leads, and wherein the thickness of the dielectric portion is approximately 1 mm, and wherein the dielectric portion has a dielectric constant of approximately three.

5 8. The connector module of Claim 1, wherein the at least one first conductive lead includes a pair of first conductive leads having a corresponding first pair of dielectric portions coupled to end portions thereof, and wherein the at least one second conductive lead includes a pair of second conductive leads having a corresponding second pair of dielectric portions coupled to end portions thereof, wherein the first and second pairs of conductive
10 leads comprise size 12 leads, and wherein the thickness of the first and second dielectric portions is approximately 0.5 mm, and wherein the first and second dielectric portions have a dielectric constant of approximately three.

9. An electronic system, comprising:
15 a communications module adapted to at least one of transmit and receive a data signal;
a signal lead; and
a capacitive coupling module coupled between the data communications module and the signal lead, the capacitive coupling module including
20 a first member having at least one first conductive lead disposed therein and a dielectric portion coupled to an end portion of the at least one first conductive lead; and
a second member having at least one second conductive lead disposed therein, the first and second members being coupled such that respective end portions
25 of the first and second conductive leads are operatively positioned and spaced apart by the dielectric portion, the dielectric portion being adapted to capacitively couple the respective end portions of the first and second conductive leads and to allow signals to be at least one of transmitted and received therethrough.

10. The electronic system of Claim 9, wherein the communications module comprises a transmitter module.

11. The electronic system of Claim 10, wherein the transmitter module comprises a
5 transmitter coupled to a gain, and a low-pass filter coupled between the gain and the signal lead.

12. The electronic system of Claim 9, wherein the communications module comprises a receiver module.

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13. The electronic system of Claim 12, wherein the receiver module comprises a receiver coupled to a gain, and a low-pass filter coupled between the gain and the signal lead.

14. The electronic system of Claim 9, wherein the dielectric portion comprises a first
15 dielectric portion, further comprising a second dielectric portion coupled to the end portion of the at least one second conductive lead.

15. The electronic system of Claim 9, wherein the at least one first conductive lead includes a pair of first conductive leads having a corresponding pair of dielectric portions
20 coupled to end portions thereof, and wherein the at least one second conductive lead includes a pair of second conductive leads.

16. The electronic system of Claim 9, wherein the first and second conductive leads comprise size 12 leads, and wherein the thickness of the dielectric portion is approximately 1
25 mm, and wherein the dielectric portion has a dielectric constant of approximately three.

17. The electronic system of Claim 9, wherein the at least one first conductive lead includes a pair of first conductive leads having a corresponding first pair of dielectric portions coupled to end portions thereof, and wherein the at least one second conductive lead
30 includes a pair of second conductive leads having a corresponding second pair of dielectric



portions coupled to end portions thereof, wherein the first and second pairs of conductive leads comprise size 12 leads, and wherein the thickness of the first and second dielectric portions is approximately 0.5 mm, and wherein the first and second dielectric portions have a dielectric constant of approximately three.

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18. An aerospace vehicle, comprising:

a fuselage;

a propulsion system operatively coupled to the fuselage; and

an electronic system disposed within the fuselage and including

10 a communications module adapted to at least one of transmit and receive a data signal;

a signal lead; and

15 a capacitive coupling module coupled between the data communications module and the signal lead, the capacitive coupling module including

a first member having at least one first conductive lead disposed therein and a dielectric portion coupled to an end portion of the at least one first conductive lead; and

20 a second member having at least one second conductive lead disposed therein, the first and second members being coupled such that respective end portions of the first and second conductive leads are operatively positioned and spaced apart by the dielectric portion, the dielectric portion being adapted to capacitively couple the respective end portions of the first and second conductive leads and to allow signals to be at least one of transmitted and received therethrough.

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19. The aerospace vehicle of Claim 18, wherein the electronic system is operatively coupled to the propulsion system.



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20. The aerospace vehicle of Claim 18, further comprising a flight control system disposed within the fuselage, and wherein the electronic system is operatively coupled to the flight control system.

5 21. The aerospace vehicle of Claim 18, wherein the communications module comprises a transmitter module.

22. The aerospace vehicle of Claim 21, wherein the transmitter module comprises a transmitter coupled to a gain, and a low-pass filter coupled between the gain and the signal
10 lead.

23. The aerospace vehicle of Claim 22, wherein the communications module comprises a receiver module.

15 24. The aerospace vehicle of Claim 23, wherein the receiver module comprises a receiver coupled to a gain, and a low-pass filter coupled between the gain and the signal lead.

25. The aerospace vehicle of Claim 18, wherein the dielectric portion comprises a first dielectric portion, further comprising a second dielectric portion coupled to the end portion of
20 the at least one second conductive lead.

26. The aerospace vehicle of Claim 18, wherein the at least one first conductive lead includes a pair of first conductive leads having a corresponding pair of dielectric portions coupled to end portions thereof, and wherein the at least one second conductive lead includes
25 a pair of second conductive leads.

27. The aerospace vehicle of Claim 18, wherein the first and second conductive leads comprise size 12 leads, and wherein the thickness of the dielectric portion is approximately 1 mm, and wherein the dielectric portion has a dielectric constant of approximately three.

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28. A method of transmitting signals, comprising:

providing a communications module adapted to at least one of transmit and receive a data signal;

providing a signal lead;

5 providing a capacitive coupling module coupled between the data communications module and the signal lead; and

capacitively transmitting the data signal between the communications module and the signal lead.

10 29. The method of Claim 28, wherein providing a communications module comprises a transmitter module.

30. The method of Claim 28, wherein providing a communications module comprises a receiver module.

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31. The method of Claim 28, further comprising filtering the data signal through a low-pass filter.

32. The method of Claim 28, wherein providing a capacitive coupling module
20 comprises providing a capacitive coupling module including

a first member having at least one first conductive lead disposed therein and a dielectric portion coupled to an end portion of the at least one first conductive lead; and

25 a second member having at least one second conductive lead disposed therein, the first and second members being coupled such that respective end portions of the first and second conductive leads are operatively positioned and spaced apart by the dielectric portion, the dielectric portion being adapted to capacitively couple the respective end portions of the first and second conductive leads and to allow signals to be at least one of transmitted and received therethrough.

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